

In the Drawings

Reference number 111 in the drawings is correct. The specification has been amended to correct a typographical error and refer to 111.

FIG. 1C has been amended to show "d". Support for this amendment to the drawings may be found on page 4, lines 22-25 of the specification as originally filed.

REMARKS

Claims 1-2, 5-6, 8 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. 5,597,613).

Regarding Claim 1 the Examiner states in part:

Hamanaka et al teaches a method for making molded optical elements on selected areas of a substrate comprising of [sic] coating the molds with a locally dispensed optically curable polymer ... Hamanaka et al. also teaches using a single stamper with plural concave portions separated by gaps...Hamanaka et al. is silent toward providing a first and second stamper each comprising of [sic] a mold and being separated by a gap. One skilled in the art would have readily appreciated that the microlens arrays from the teachings of Hamanaka et al. could be made using multiple stampers that are separated by gaps... It is well known to use multiple stampers as shown for example by Galarneau et al. who teaches using quartz master elements (stampers) for tiling a large diffractive optical element (Column 1, line 49-Column 2, line 35; Column 5, line 45 - Column 6, line 12). The gaps (dicing areas) from the single stamper with the plurality of concave portions would correspond to the gaps that would separate the multiple stampers. One skilled in the art would have readily recognized that the two are alternate expedients which are obvious over one another as shown for example in Figure 5 of Hamanaka et al. Also, one skilled in the art would have readily appreciated that using multiple stampers reduces manufacturing costs and provides additional weight reduction (Galarneau et al.: Column 1, lines 49-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple stampers that have molds in the method of Hamanaka et al. as suggested by Galarneau et al.

Applicants respectfully traverse the rejection. Claim 1 recites in part: "providing a first and second stamper each comprising a mold, said first and said second stamper being separated by a gap" (emphasis added). The "gap" as used in Claim 1 differs from "trap portion 3" as disclosed by Hamanaka et al. Hamanaka et al. state "the depth of trap portion 3 is substantially equal to those of the plural concave portions 2" (emphasis added) (paragraph 25, lines 42-43); "said trap portion is formed at each outside periphery of each group of the concave portions for each planar micro-lens array, with the depth substantially equal to that of said concave portions" (paragraph 17, lines 53-56). In contrast, for the "gap" as recited in Claim 1 the specification states, "the separation distance d sets the approximate height [depth] and area dimensions needed for the size of gap 191 so that the excess optically curable polymer 115 will collect in gap 191 instead of forming a thick film over substrate 120. If gap 191 has the appropriate dimension as determined from the separation distance d, optically curable polymer 115 will tend to move vertically up the sides of gap 191 as molds 145 and substrate 120 are brought together, reducing the thickness of the film formed on the surface of substrate (page 4, line 25 - page 5 line 6). It is apparent that the dimensions of the "gap" depend on the specific properties of the optically curable polymer that is used. Hence, the dimensions of the "gap" recited in Claim 1 are determined in a fundamentally different way from the dimensions of "trap portion 3" disclosed by Hamanaka et al. Therefore, the "gap" as used in Claim 1 and defined in the specification is fundamentally different from "trap portion 3" and Claim 1 is patentable over Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. 5,597,613).

Claims 2, 5-6, 8 and 11 depend from Claim 1 and are patentable over Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. 5,597,613) for at least the same reasons as Claim 1.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Kondo (U. S. Patent No. 6,653,157). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Kondo do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claim 3 which depends from Claim 1 is patentable over Hamanaka et al. (EP 0,911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Kondo (U.S. Patent No. 6,653,157).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Nishikawa et al. (U.S. Patent No. 6,730,459). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Nishikawa et al. (U.S. Patent No. 6,730,459) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claim 4 which depends from Claim 1 is patentable over Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Nishikawa et al. (U.S. Patent No. 6,730,459).

Claims 7 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Morita (U.S. Patent No. 6,814,897). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), as applied to Claims 1-2, 5-6, 8 and 11, and further in view of Morita (U.S. Patent No. 6,814,897) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claims 7 and 12 which depend from Claim 1 are patentable over Hamanaka et al. (EP 0, 911, 144) in view of Galarneau et al. (U.S. Patent No. 5,597,613) and further in view of Morita (U.S. Patent No. 6,814,897).

Claims 9-10, 13-14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12, and further in view of Harden et al. (U.S. Patent No. 6,610,166). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12, and further in view of Harden et al. (U.S. Patent No. 6,610,166) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claims 9-10, 13-14 and 16-18 which depend from Claim 1 are patentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), further in view of Morita (U.S. Patent No. 6,814,897) and further in view of Harden et al. (U.S. Patent No. 6,610,166).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Uehara (U.S. Patent No. 4,566,930) and Takakuwa et al. (U.S. Patent No. 6,280,660). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Uehara (U.S. Patent No. 4,566,930) and Takakuwa et al. (U.S. Patent No. 6,280,660) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claim 14 which depends from Claim 1 is patentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), further in view of Morita (U.S. Patent No. 6,814,897) and further in view of Uehara (U.S. Patent No. 4,566,930) and Takakuwa et al. (U.S. Patent No. 6,280,660).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Fujita (U.S. 2004/0090571). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), and further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Fujita (U.S. 2004/0090571) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claim 15 which depends from Claim 1 is patentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613),

further in view of Morita (U.S. Patent No. 6,814,897) and further in view of Fujita (U.S. 2004/0090571).

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Houlihan et al. (U.S. Patent No. 6,700,708). Applicants respectfully traverse the rejection. Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), further in view of Morita (U.S. Patent No. 6,814,897), as applied to Claims 1-2, 5-7 and 11-12 and further in view of Houlihan et al. (U.S. Patent No. 6,700,708) do not disclose, teach or suggest a "gap" as recited in Claim 1 and defined in the specification. Hence, Claims 19-20 which depend from Claim 1 are patentable over Hamanaka et al. (EP 0, 911,144) in view of Galarneau et al. (U.S. Patent No. 5,597,613), further in view of Morita (U.S. Patent No. 6,814,897) and further in view of Houlihan et al. (U.S. Patent No. 6,700,708).

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (U.S. Patent No. 6,814,897) in view of Harden et al. (U.S. Patent No. 6,610,166).

Applicants respectfully traverse the rejection. The Examiner states in part that:

Morita teaches a method for making a stamper comprising: pouring a UV curing liquid resin into the concavity-protuberance surface of the father (master) and then placing a transparent plate, such as a glass plate, upon the liquid resin to avoid introducing bubbles. UV radiation is then applied through the transparent plate, causing the resin to cure. The cured resin and the transparent plate are then peeled off the father, and they make up the mother (stamper) (Column 10, lines 14-19; Column 10, line 65-Column 11, line 20).

However, Claim 21 as amended recites in part " providing a master having a structure to produce gaps on said stamper". No reference cited by the Examiner either individually or in combination including Morita discloses, teaches or suggests "gaps on said stamper" as recited in Claim 21. As noted above the term "gap" as used in the instant application is fundamentally different from "trap portion 3" as disclosed by Hamanaka et al. Hence, Claim 21 as amended is allowable over the cited references.

Similarly, Claim 22 as amended recites in part "providing a master having a structure to produce gaps on said stamper". No reference cited by the Examiner either individually or in combination including Morita discloses, teaches or suggests "gaps on said stamper" as recited in Claim 21. As noted above the term "gap" as used in the instant application is fundamentally different from "trap portion 3" as disclosed by Hamanaka et al. Hence, Claim 22 is allowable over the cited references.

Therefore, Claims 1-22 are in condition for allowance and allowance is respectfully requested. Should the Examiner wish to discuss any aspect of the application he is invited to telephone the undersigned at (650) 485-5904.

Respectfully submitted,

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